

## REMARKS

Claims 1-22 are pending in the application.

Claims 1-22 are rejected.

Claims 1-4, 6-16, 20 and 22 are rejected under 35 U.S.C. 102(e).

Claims 5, 17-19 and 21 are rejected under 35 U.S.C. 103(a).

Claims 1-7 are cancelled without prejudice.

Claim 8 is amended.

Claims 23-29 are added. Support for the limitations can be found at, among other locations, page 8, lines 3-7 of the specification.

No new matter is added.

Claims 8-29 remain in the case for consideration.

Applicant requests reconsideration and allowance of the claims in light of the above amendments and following remarks.

*Claim Rejections - 35 USC § 102*

Claims 1-4, 6-16, 20, and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Application Publication US 2003/0096473 to Shih, et al. ("Shih").

Applicants respectfully traverse the rejections.

Claims 1-7 are cancelled.

Further, claim 8 is amended to recite,

"forming a capacitor lower electrode on a semiconductor substrate;

forming a multi-layer structure over the capacitor lower electrode, wherein forming the multi-layer structure comprises:

forming a first dielectric layer comprising aluminum oxide on the capacitor lower electrode by atomic layer deposition (ALD) using an O<sub>2</sub> plasma;

forming a second dielectric layer comprising a material having a higher dielectric constant than aluminum oxide on the first dielectric layer by ALD using the O<sub>2</sub> plasma;

forming a third dielectric layer comprising aluminum oxide on the second dielectric layer by ALD using the O<sub>2</sub> plasma; and

forming a capacitor upper electrode on the third dielectric layer."

Support for the amendments can be found, among other locations, at page 9, line – page 10, line 3; page 10, lines 25-30; and page 11, lines 14-15 of the present application.

None of the cited references teach or disclose the above features of the claimed invention recited in claim 8. For example, in Shih, a second wide band-gap layer is deposited by CVD, not by ALD using an O<sub>2</sub> plasma as recited in amended claim 8. See, for example, paragraph 0024 of Shih.

Thus, Shih does not teach all of the limitations of claim 8. For these reasons, Shih does not anticipate claim 8. Also, claims 9-16, 20 and 22, which depend from allowable claim 8 and recite features that are neither taught nor disclosed in the cited references, are also allowable.

### ***Claim Rejections - 35 USC § 103***

Claims 5, 17-19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shih et al. (U.S. Patent Application Publication US 2003/0096473) in view of further remark.

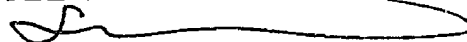
Applicants respectfully traverse the rejections.

For the reasons discussed above, the cited references, either alone or in combination, do not teach or suggest all of the limitations of claim 8. Accordingly, the rejection does not present a *prima facie* case of obviousness with respect to dependent claims 17-19 and 21, which depend from allowable claim 8. Therefore, applicants respectfully request the allowance of claims 17-19 and 21.

### ***Conclusion***

For the foregoing reasons, reconsideration and allowance of claims 8-29 of the application as amended is solicited. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Respectfully submitted,  
MARGER JOHNSON & McCOLLOM, P.C.



Hosoon Lee  
Reg. No. 56,737

MARGER JOHNSON & McCOLLOM, P.C.  
210 SW Morrison Street, Suite 400  
Portland, OR 97204  
503-222-3613  
Customer No. 20575

I hereby certify that this correspondence is being transmitted to the U.S. Patent and Trademark Office via facsimile number (571) 273-8300, on August 12, 2005.

  
Li Mei Vermilya